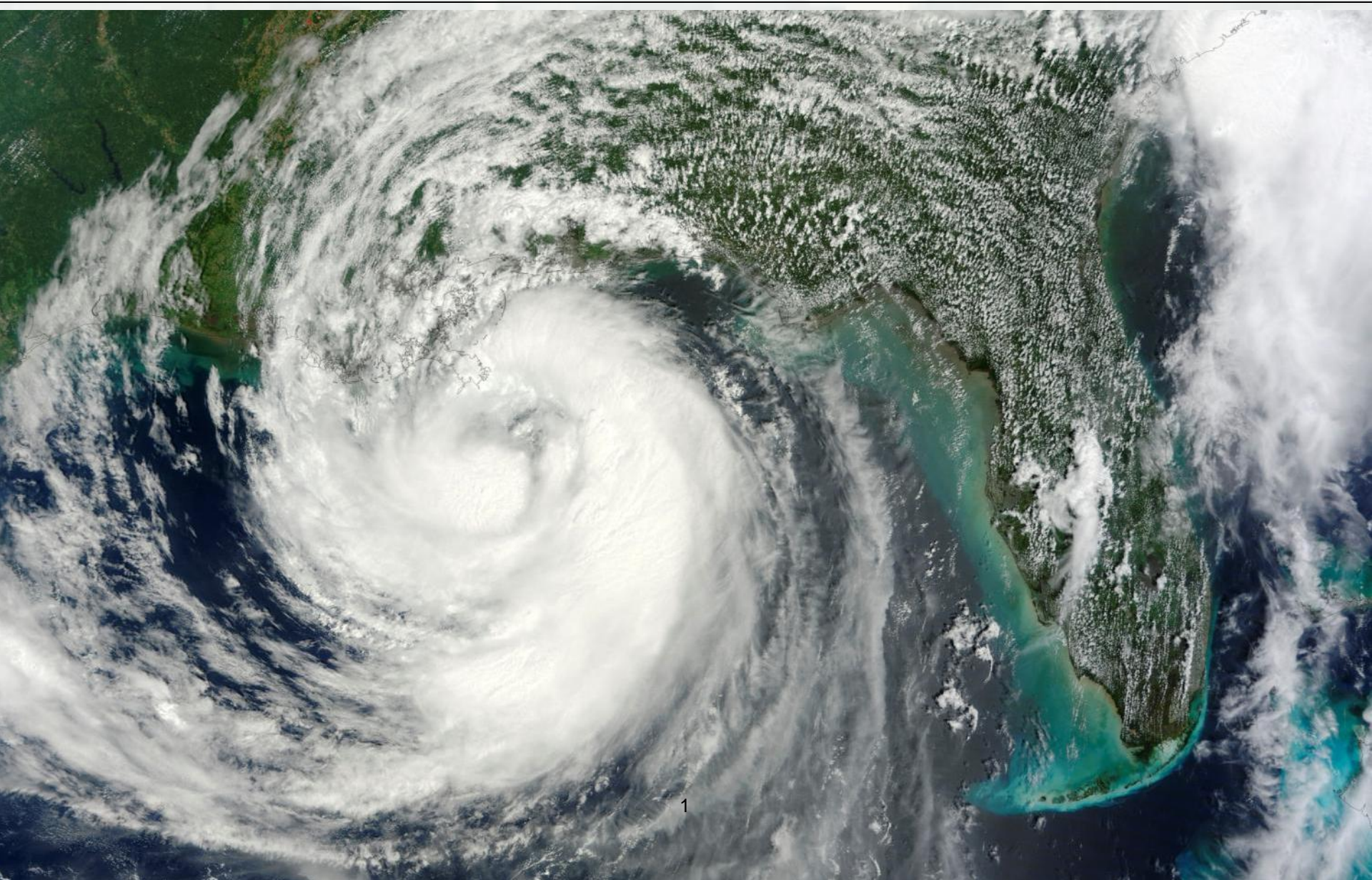
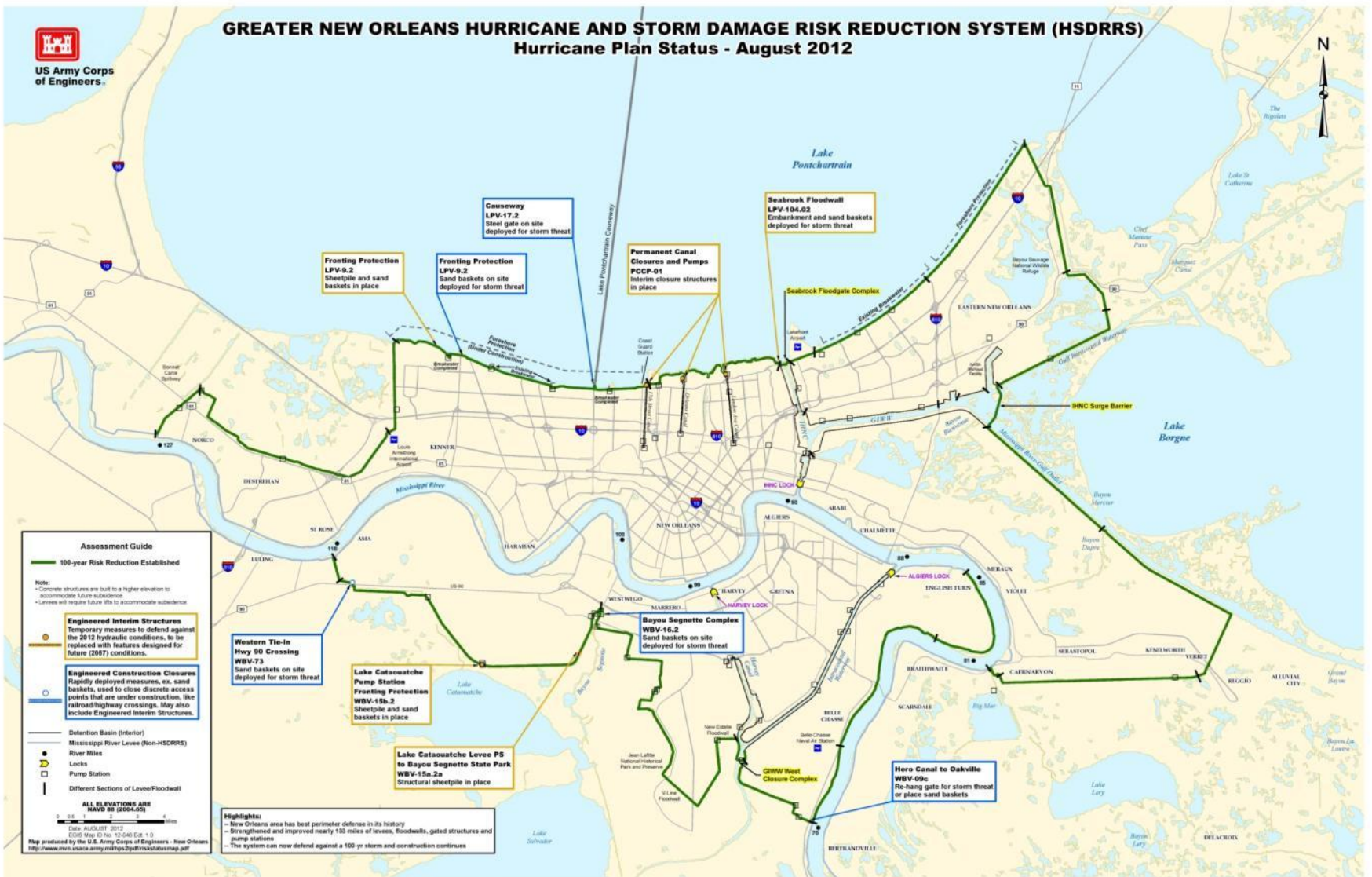


Hurricane Isaac: USACE Midwest Regional Seminar, Oct. 18, 2012

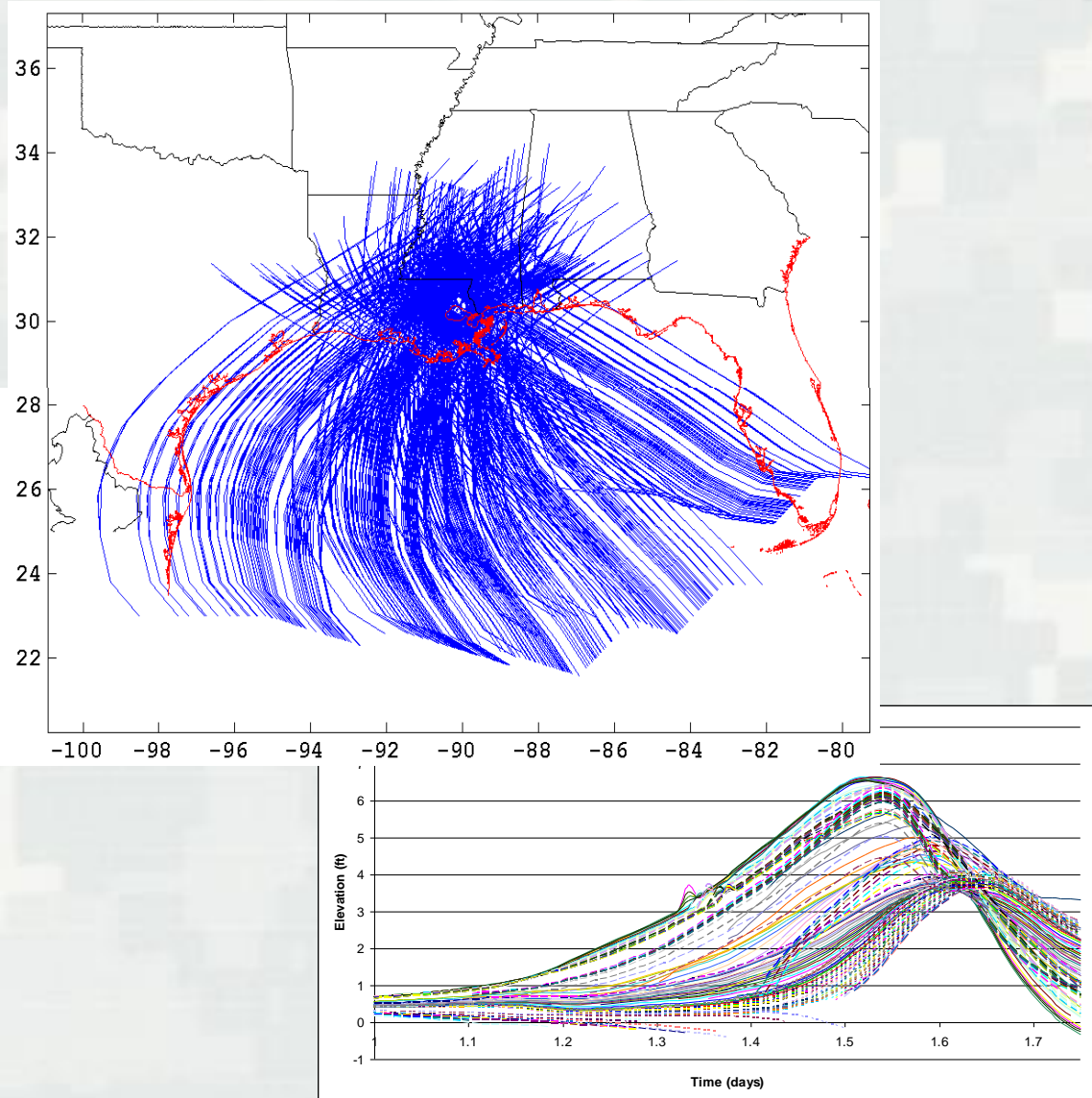
Col. Ed Fleming, New Orleans District Commander



Construction Closures and Interim Structures



Hurricane Paths Considered in the Risk Analysis



- *3 HPS Geometries*
 - *Pre-Katrina*
 - *Current (1 June 07)*
 - *100-year LOP (~2011)*
 - *152 storms*
 - *350+ features*
 - *Floodwalls*
 - *Levees*
 - *Pumps Stations*
- **62,928 Hurricane Hydrographs**

HSDRRS Openings

Total System Openings: 504

Navigable Openings: 13

Roadway Openings: 145

Railroad Openings: 42


Access Openings: 151

Drainage Openings: 153

• Approx 100 of these openings kept in the closed position

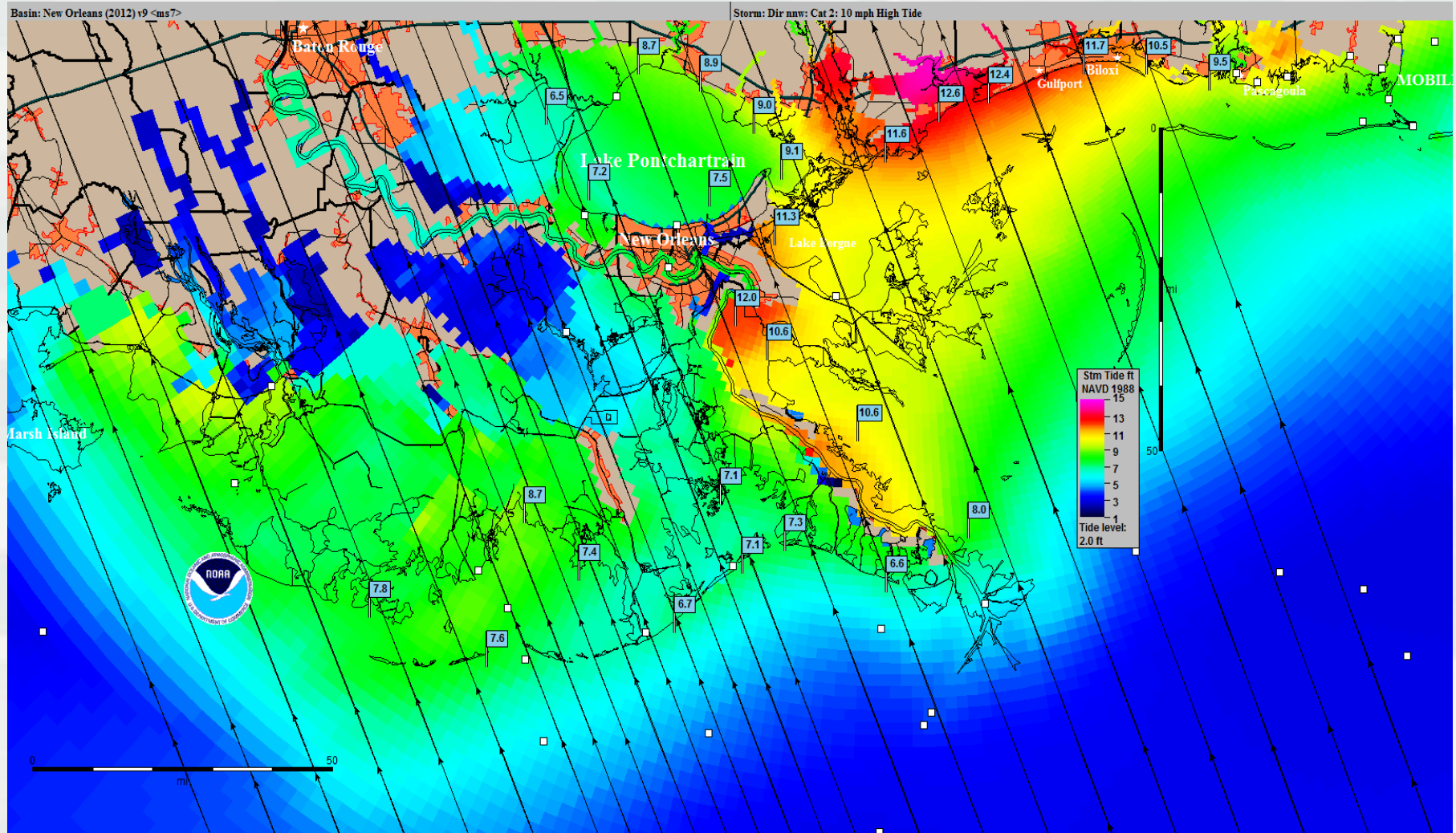
• Data as of 31 May 2012

GREATER NEW ORLEANS HSDRRS CLOSURES/INTERIOR REACHES

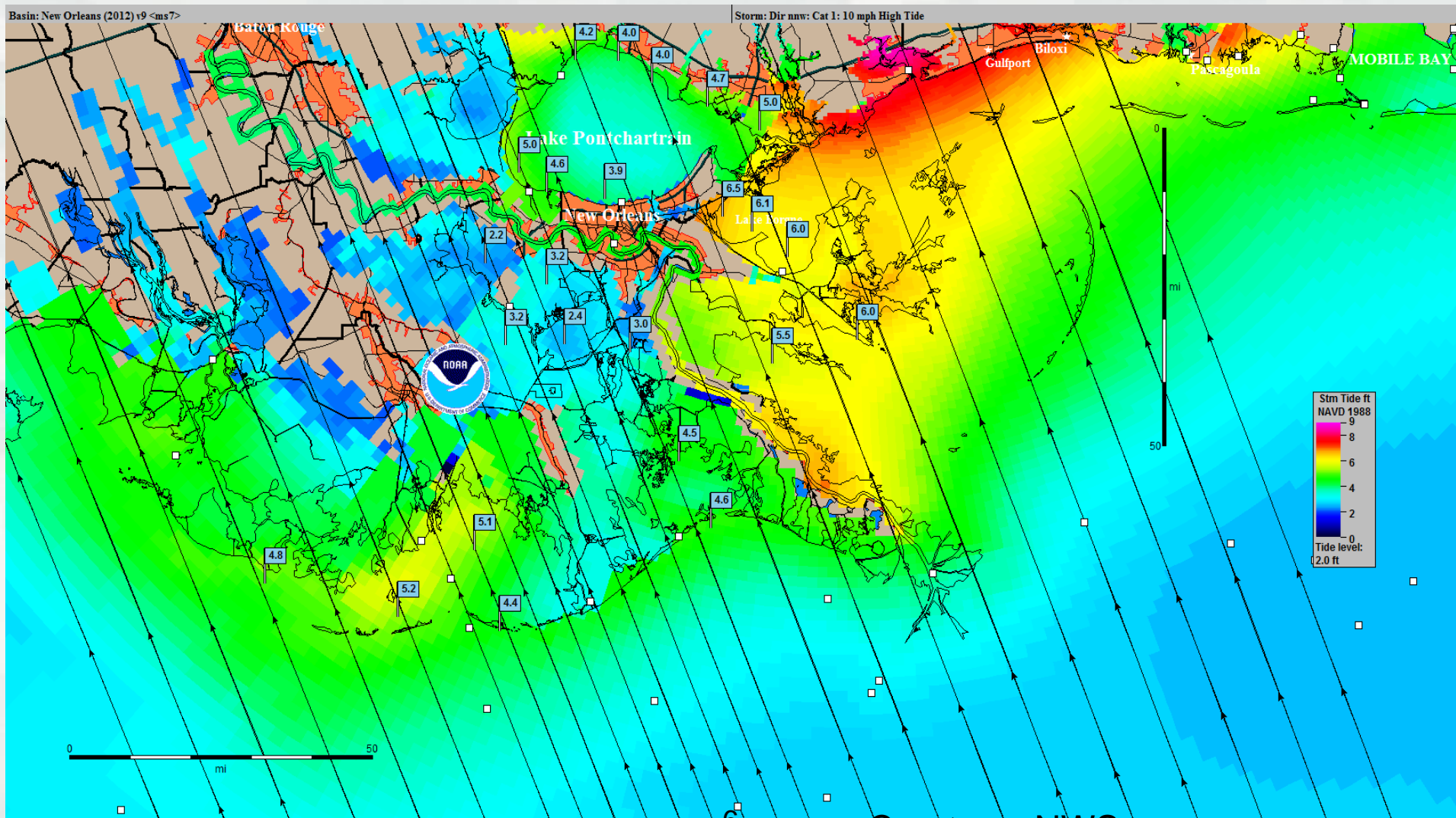
-  HSDRRS (Perimeter Reaches)
-  HSDRRS (Interior Reaches)
-  Closure Structures/Gates



Scenario 1: Storm surge potential for all locations Cat 2 Hurricane as of 27 Aug

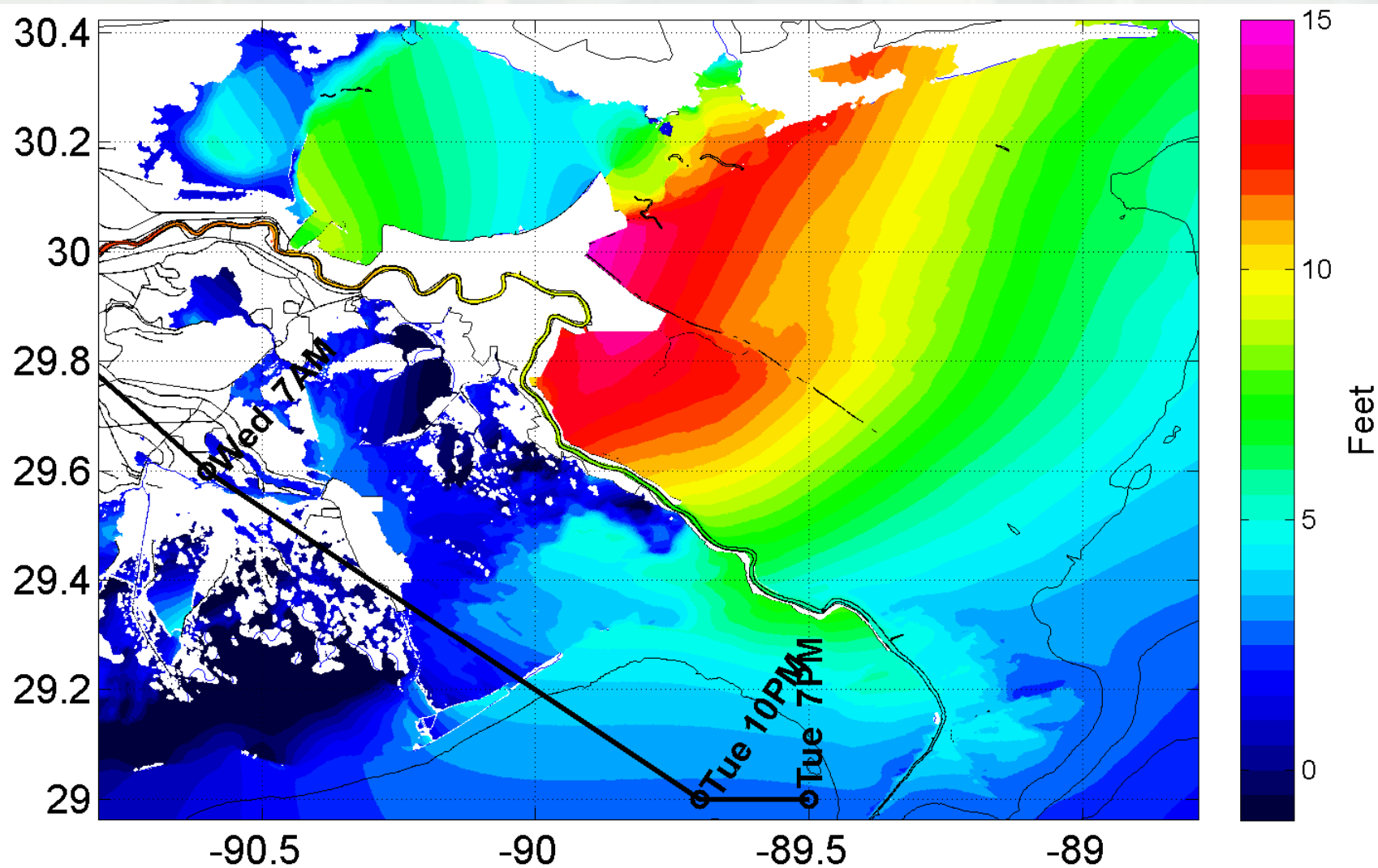


Scenario 2: Storm surge potential for all locations Cat 1 Hurricane as of 27 Aug.

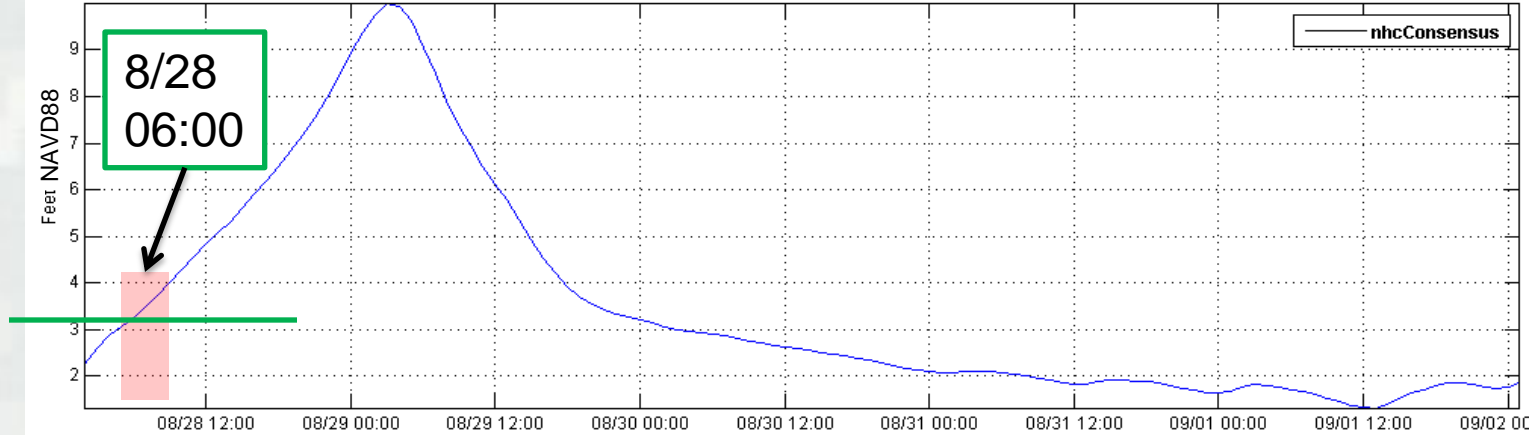


NHC CONSENSUS Peak Surge at 08/29 05:00

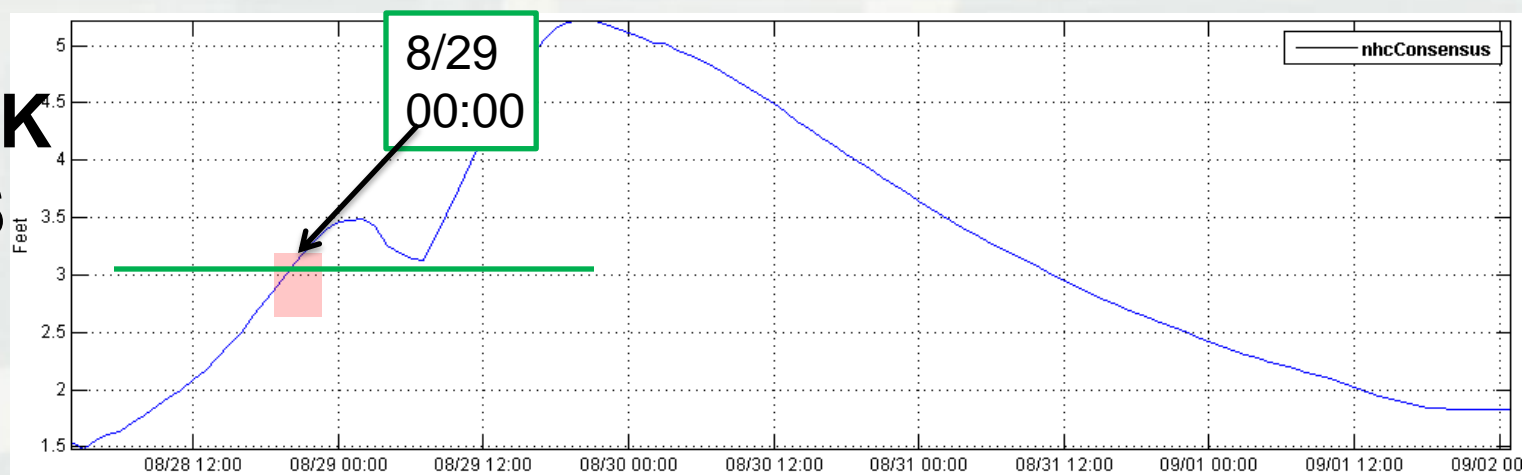
(Based on late 28 Aug. data)



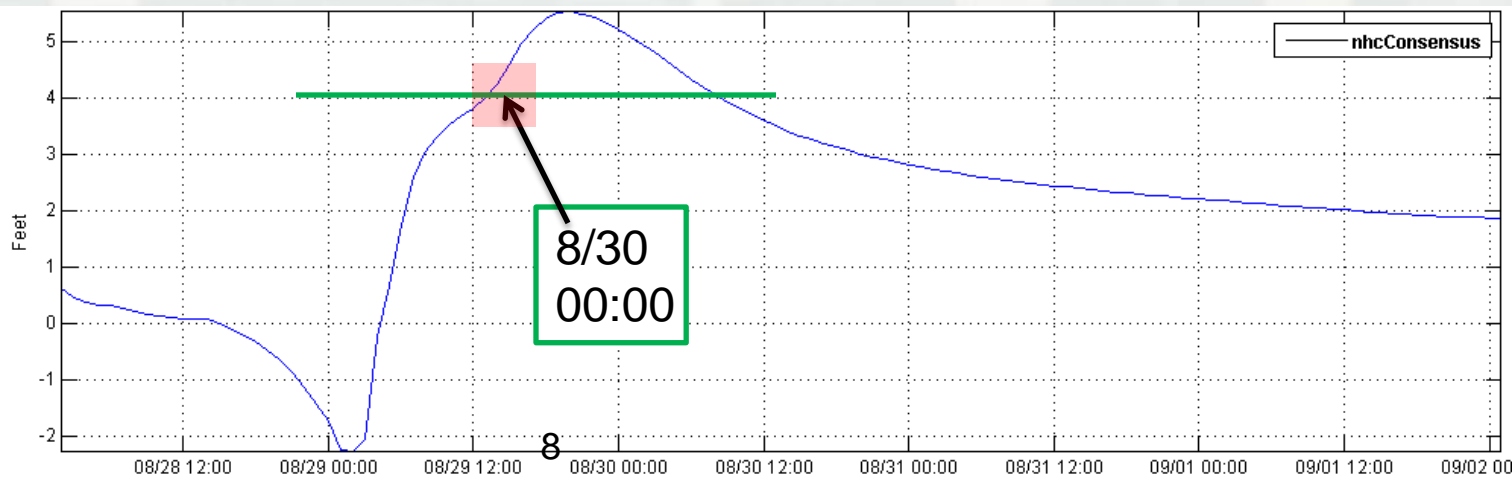
IHNC



**SEABROOK
& CANALS**



WCC



Construction Closure

Causeway



Construction Closure

Duncan Pump Station



Bayou Segnette



Construction Closures

HWY 90 Closure



HWY 23 Closure



Major Structure Utilizations

LAKE PONTCHARTRAIN



17th St.



Orleans



London



Seabrook



IHNC Surge Barrier

Bayou Verret



Bayou Segnette

Harvey Floodgate



Hero Canal

West Closure Complex



Caernarvon

GIWW/MRGO
(18.5 linear miles)

IHNC
(9.9 linear miles)

London Av Canal
(6.1 linear miles)

Orleans Av Canal
(4.8 linear miles)

17th Street Canal
(4.7 linear miles)

GIWW/Algiers Canal
(17.5 linear miles)

GREATER NEW ORLEANS HSDRRS CLOSURES/INTERIOR REACHES

- HSDRRS (Perimeter Reaches)
- HSDRRS (Interior Reaches)
- Closure Structures/Gates



Lake Borgne Surge Barrier

Operation During Hurricane Isaac



- Barge Gate closed pre-event.
- Sector Gates
 - Trigger elevation: 3.0 and rising (with predicted surge of 5.0)
 - Closed at 1100 28 Aug 2012
- Bayou Bienvenue lift gate
 - Trigger elevation: 3 ft.
 - Closed at 1100 28 Aug 2012

Seabrook Gate Complex

Operation During Hurricane Isaac



- Trigger elevation: 3.0 and rising (with predicted surge of 5.0)
- Gates closed 1330 28 Aug 2012



Orleans Parish Outfall Canal Interim Closure Structures

17th St. Canal



Orleans Ave. Canal



London Ave. Canal



West Closure Complex

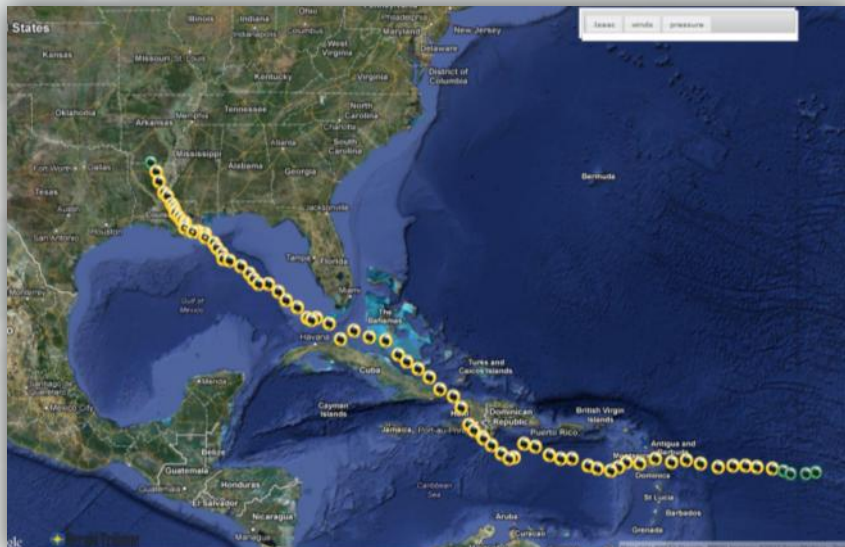
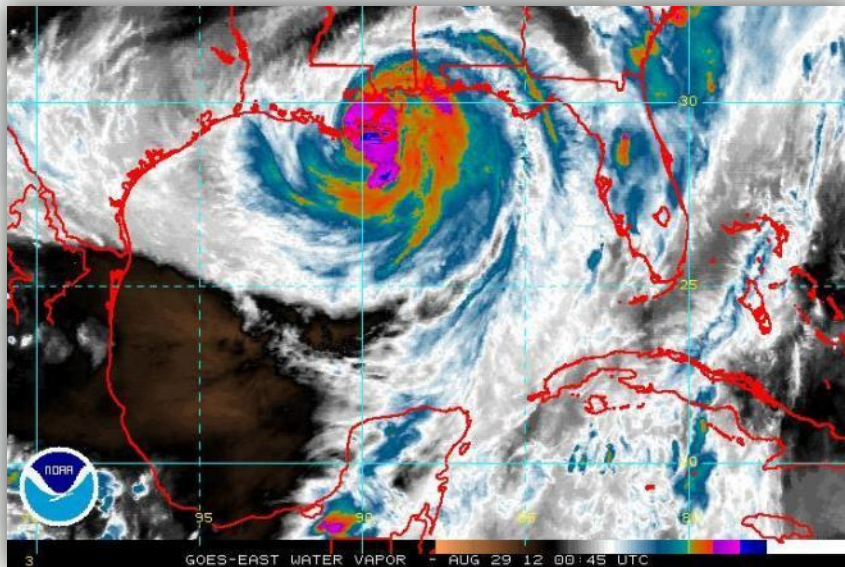
Operation During Hurricane Isaac



- Trigger Elevation: 2.0-3.8 ft
(with predicted surge of 4.0 ft)
- Sector Gates closed at 0920 29 Aug 2012

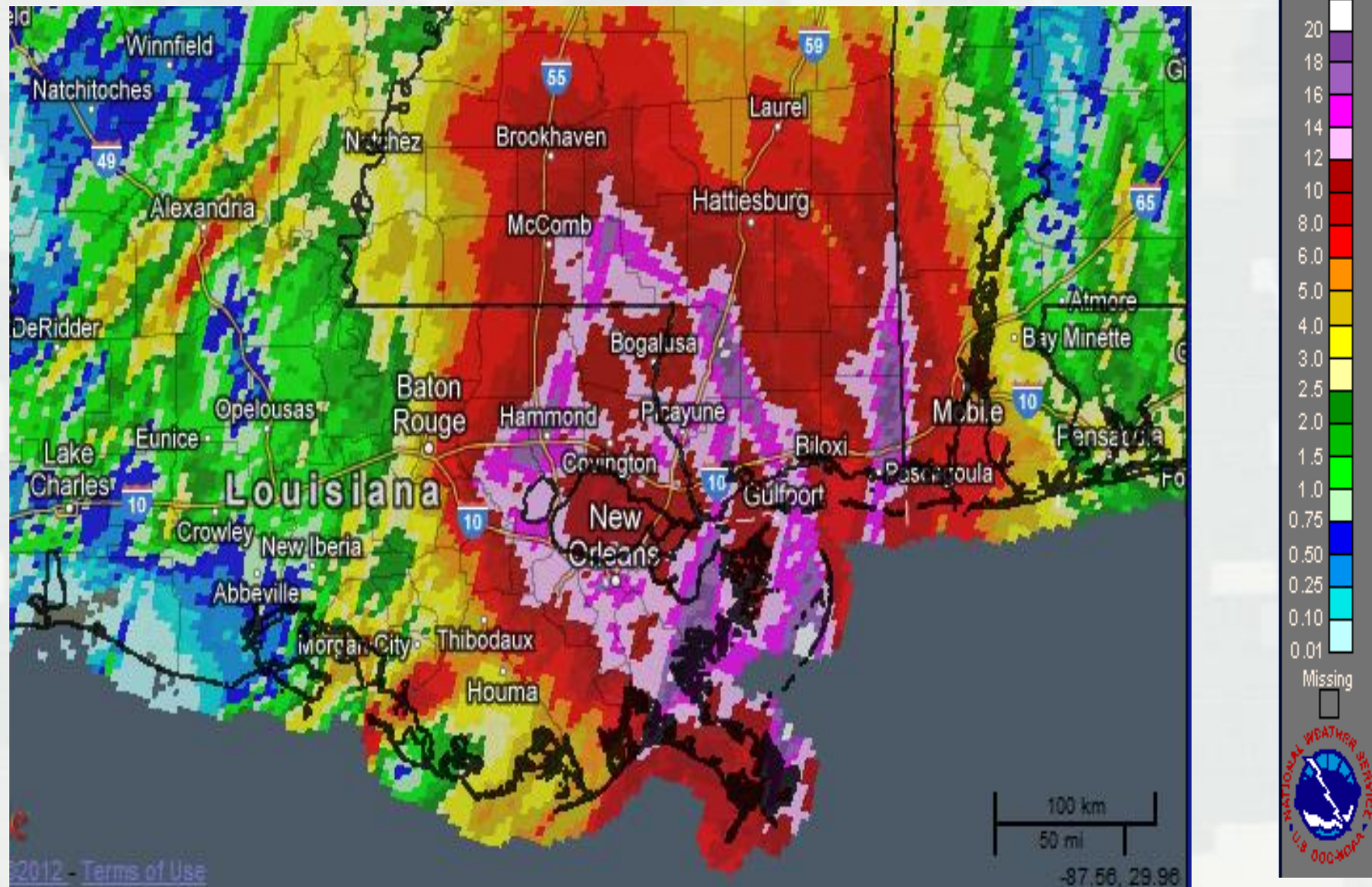


Hurricane Isaac

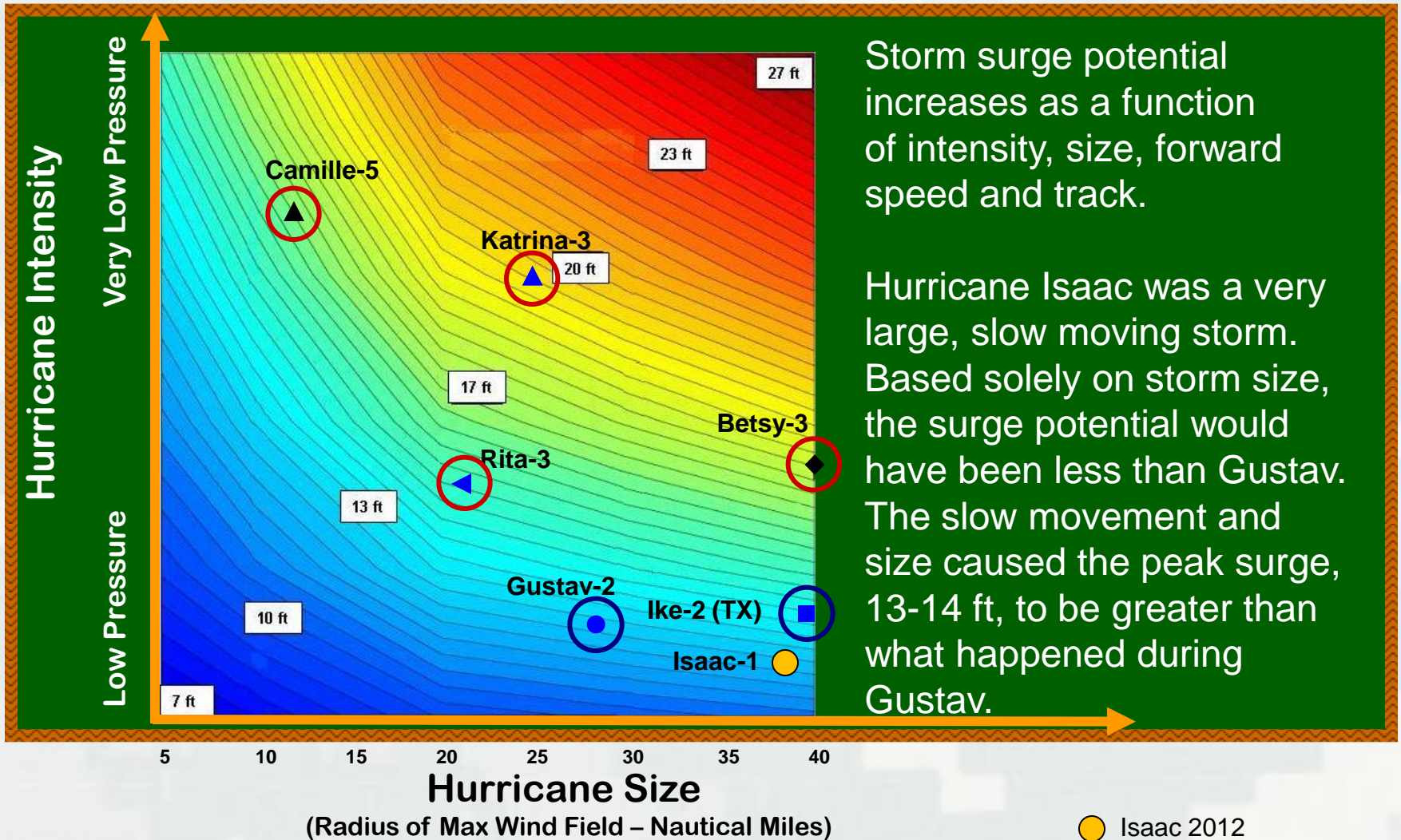


- Formed: 21 Aug 2012
- Landfall #1:
 - ▶ near mouth of Mississippi River
 - ▶ Occurred at 0645 on 28 Aug 12
- Landfall #2:
 - ▶ Port Fourchon
 - ▶ Occurred at 0200 on 29 Aug 12
- Highest winds: 80 mph
- Peak category: 1
- Max storm surge: 13 -14 ft.
- Lowest pressure: 966 mbar
- Diameter: 250 miles

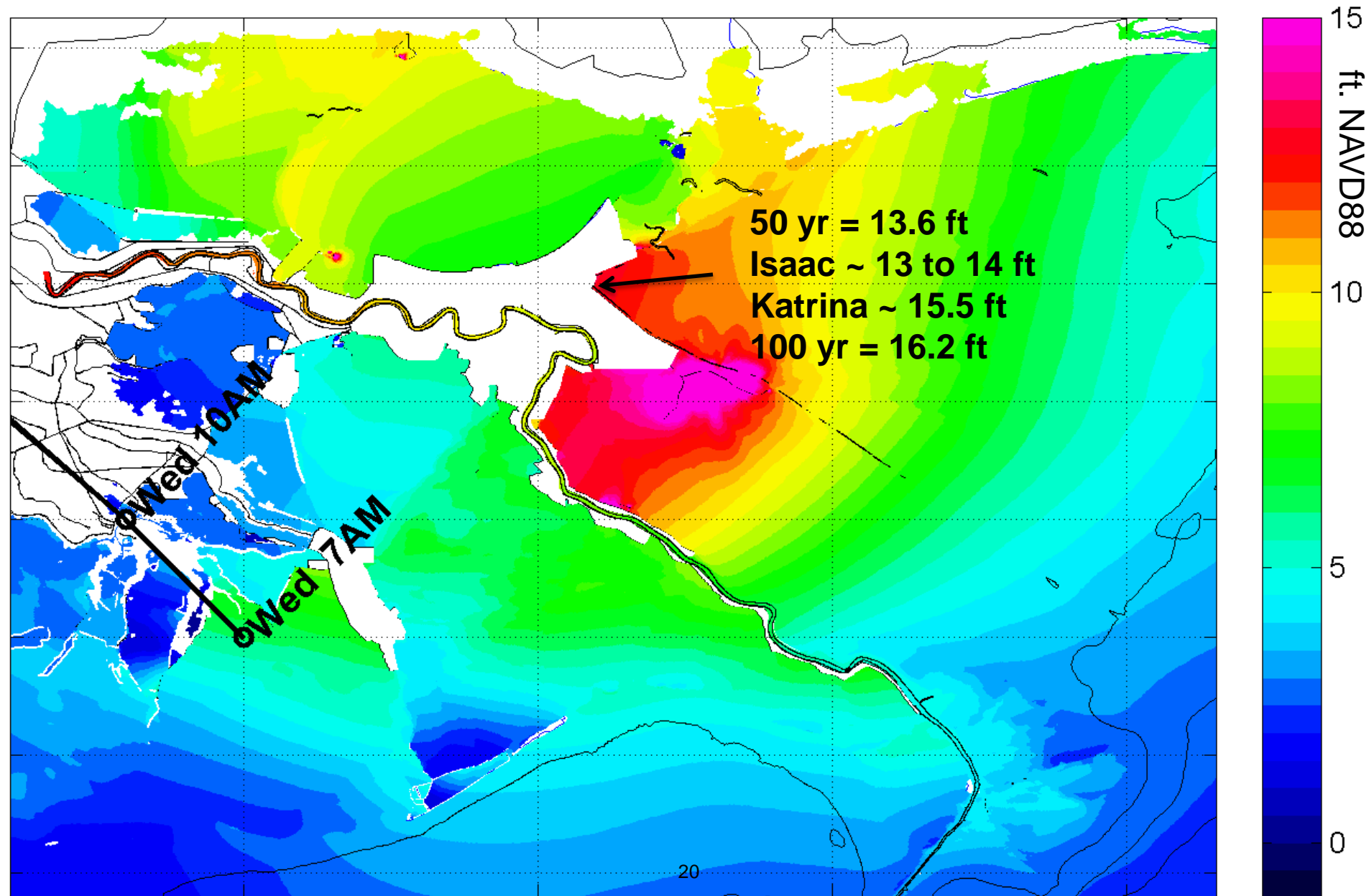
Rainfall Totals Hurricane Isaac



Hurricane Size Matters



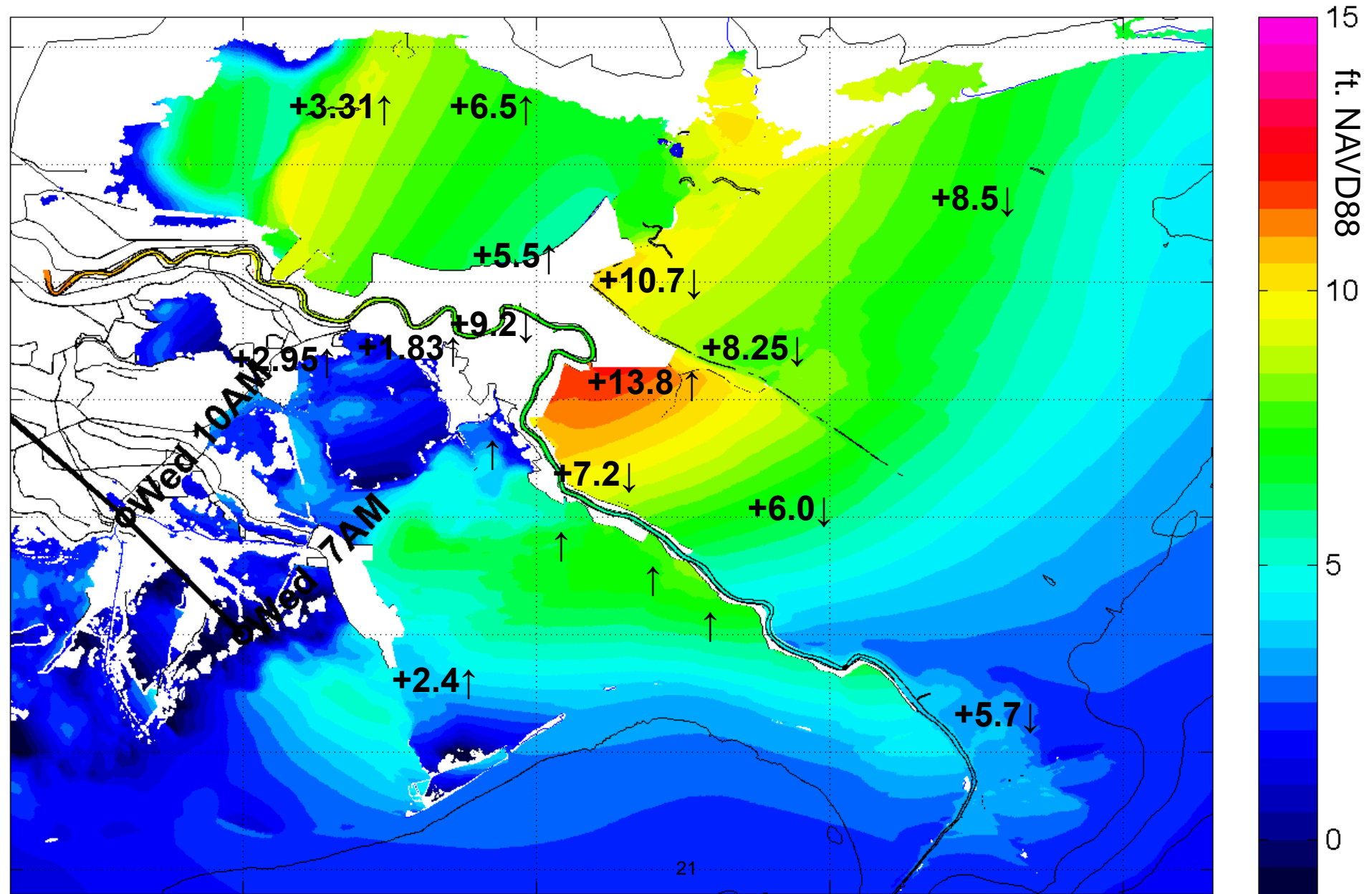
NHC CONSENSUS ADV34 Peak Surge of Entire Simulation (Data 4 p.m. 29 Aug)



NHC CONSENSUS ADV34

ADCIRC & Actual

Surge at 08/29 12:00



Performed as Designed

LAKE PONTCHARTRAIN



LAKE BORGNE

- Developed new HSDRRS hydraulic, geotechnical and structural design criteria.
- Floodwalls and hardened structures built for 2057 hydraulic conditions
- Pre-Katrina system: 200 miles
- Post-Katrina 100-yr system: 130 miles
- 30% shorter perimeter exposed to surge

17th Street Canal
(4.7 linear miles)

Orleans Av Canal
(4.0 linear miles)

London Av Canal
(6.1 linear miles)

14th Canal
(9.9 linear miles)

GIWW/MRGO
(18.5 linear miles)

GIWW/Algiers Canal
(17.5 linear miles)

Harvey Canal
(7.9 linear miles)

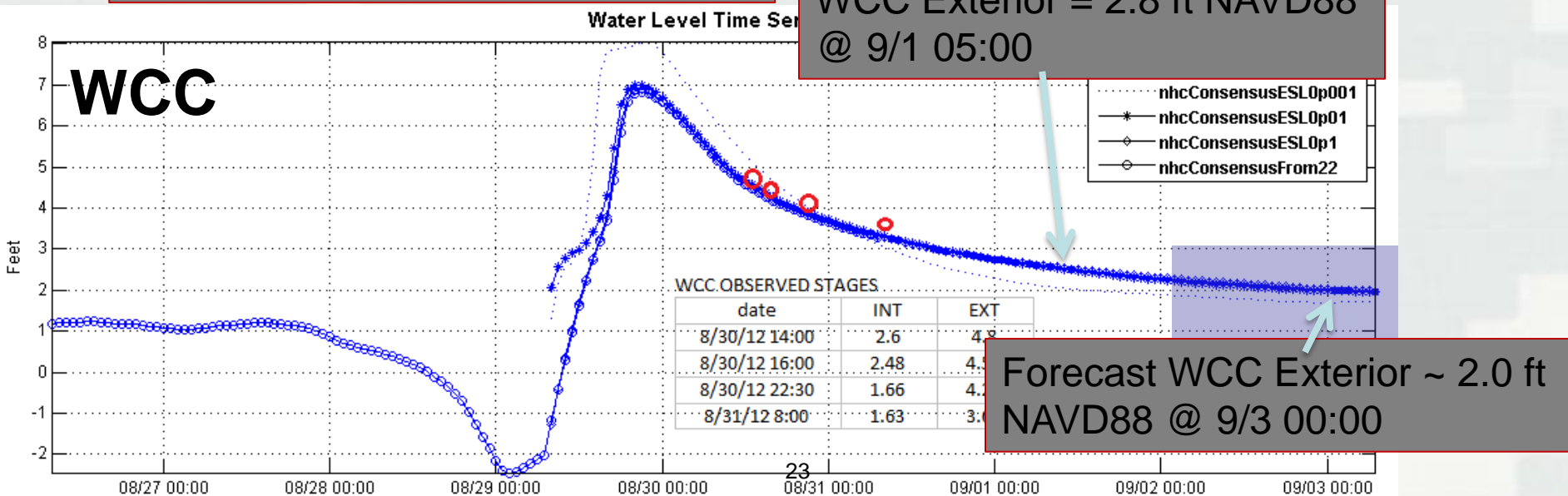
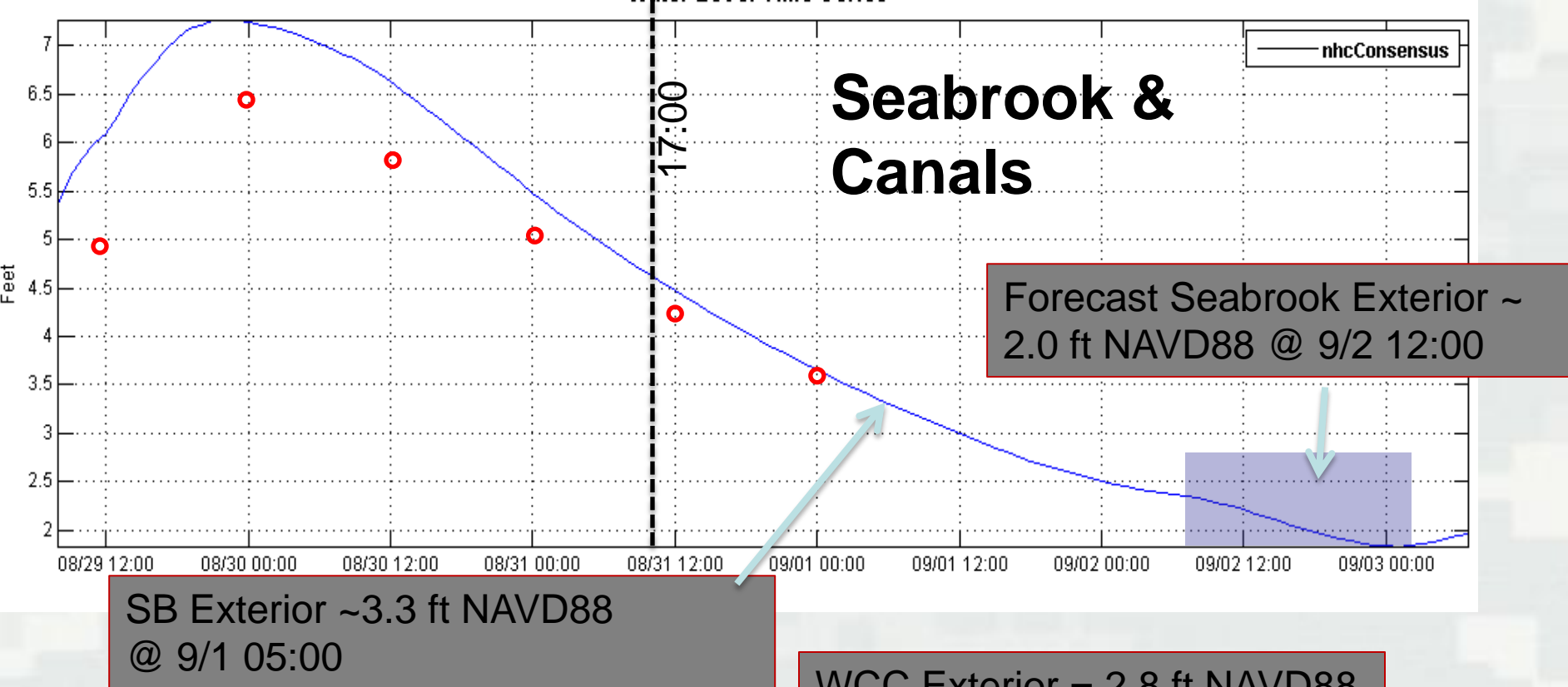


22

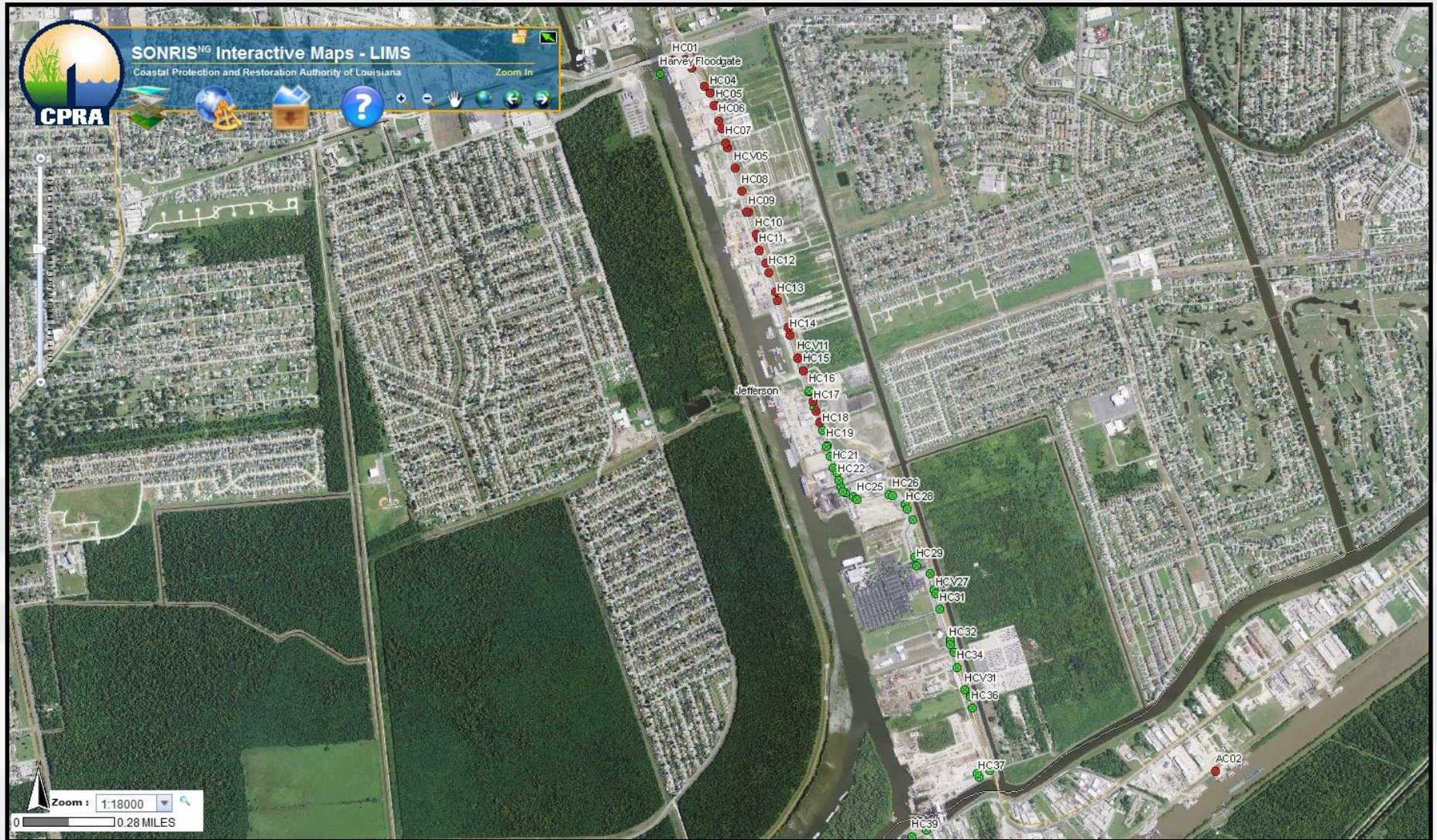
GREATER NEW ORLEANS HSDRRS
CLOSURES/INTERIOR REACHES

- HSDRRS (Perimeter Reaches)
- HSDRRS (Interior Reaches)
- Closure Structures/Gates





LIMS



Hurricane Isaac

*"The good news is the Army Corps levees that were built around New Orleans, Jefferson Parish and some of these other areas, worked very well, and **they were done expeditiously.**"*

- President Barack Obama



*The system's performance during Hurricane Isaac was a **"miracle."***

- Senator Mary Landrieu (D-LA)

*"We owe the American people a great debt of gratitude. The \$14.5 billion levee protection system worked exactly as it was supposed to. That's a great story from this storm. This federal investment not only **protected New Orleans**, but secured a region that provides this nation energy security and national security."*

- New Orleans Mayor Mitch Landrieu

*First, our new protection system performed as designed, and the corps operated it in a **very professional way.** There was no significant flooding inside this system. Without the post-Katrina improvements, there would have been. This is no small fact, although Isaac didn't fully test the system.*

- Senator David Vitter (R-LA)

*"**Incredible work and effort** from the Corps of Engineers. Please pass along my thanks."*

**--GEN Raymond Odierno,
Chief of Staff of the Army**



Hurricane Isaac Media Roll Up *as of 30 Aug 2012, 1800*

347 Total Media Engagements (plus 30)

Local :Times-Picayune, St. Bernard Voice, WVUE, WWL-TV, WGNO, WDSU, WRNO, WBOK, WWL Radio, Biloxi Sun Herald, Baton Rouge Advocate

National: CNN, FOX News, ABC, CBS, The Weather Channel, NBC, USA Today, Wall Street Journal, Politico, NY Times, Reuters, Associated Press, Christian Broadcast, Washington Post, Greenwire, Christian Science Monitor, Engineering News-Record, Popular Mechanics, Bloomberg, CNN Espanol, NPR, LA Times, Minneapolis Tribune

International: Univision, Telemundo, Russian National TV, German TV, BBC, CNN Canada, Australia TV, AFP, Canada Alberta, CBC News Network, France 24, The Economist London

Print

TV

Radio

27

44

29

67

164

1

1

11

3

MEDIA ENGAGEMENTS DEFINED

Interviews
Information Request and Inquiries
Fact Checking

Media Actions Tracking:

9 – Press Releases / Media Advisories Issued
1 – Press Conferences Hosted, 7 – Press Conferences Participated In
Media Embeds: J. Schwartz , *NY Times* & B. Mowbray, *Times Picayune*

Media Coverage Highlights - Positive

System in place is the best system to date.

The safety of the public is and will always be the Corps top priority.

We have emergency procedure plans in place and are executing our plans in partnership with local and state governments.

Local government liaisons are embedded within all 13 coastal parishes including SFLPA-W and SFLPA-E, as well as the GOHSEP.

There are a total of 504 openings in the HSDRRS and we have executed our closure plan.

Media Coverage Highlights - Negative

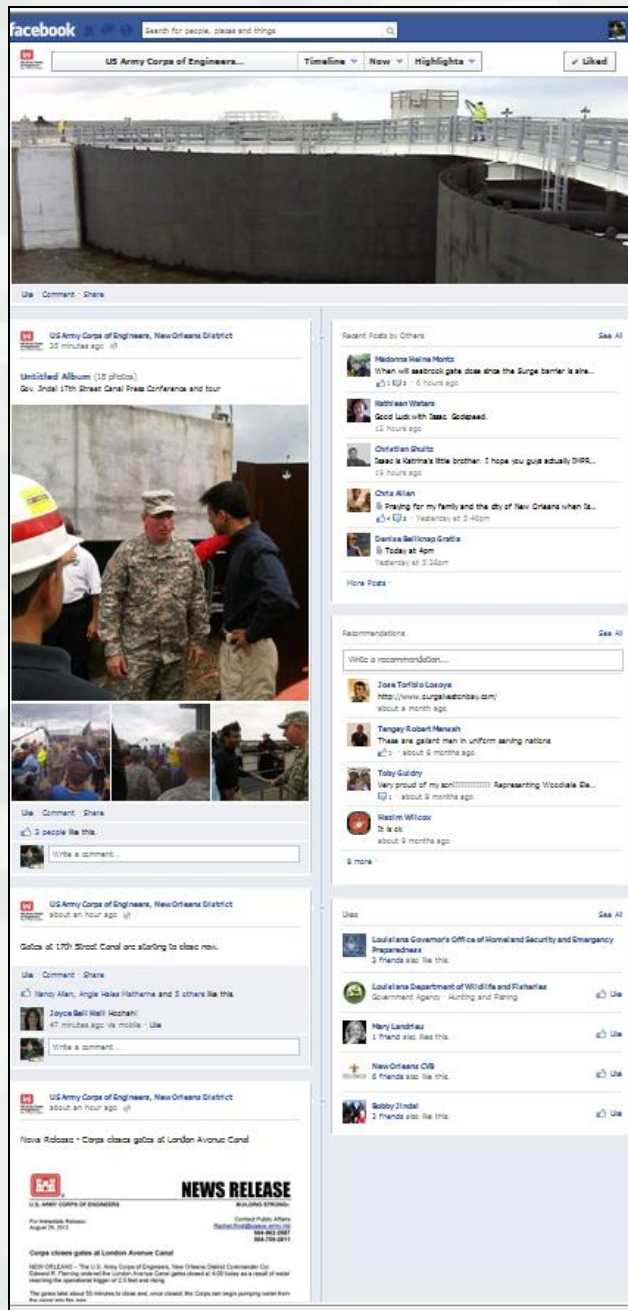
Senator Mary Landrieu attacking Corps concerning Plaquemines Parish not being included in the HSDRRS.

Flooding impacts in LaPlace as a result of the HSDRRS and the lack of federal protection in their area.

Media Trending Analysis:

- ❖ Open and transparent communications
- ❖ Media using key messages on risk reduction
- ❖ Partners using key messages during their interviews
- ❖ Seamless information exchange with media
- ❖ Public affairs team has exerted great effort toward helping reporters and the general public with understanding the status of the HSDRRS

Hurricane Isaac Media Roll Up *as of 30 Aug 2012*



Social Media Actions:

Facebook

Posting Press Releases / Media Advisories
Photos of Events, Closures, Field Actions
Stakeholder Communication Materials
Answering Public Inquiries / Correcting Misinformation

Twitter – Averaging 2.5 Tweets per hour, 111 retweets since 8/28/2012 and 117 mentions of @teamneworleans since 8/27/2012

Flickr & YouTube – Posted photos and videos of HSDRRS system and current status

Ask the Corps- Responded to media and public email inquiries

Social Media Trends / # of Hit:

Facebook – 5,556 Likes (plus 51 since 8/29/2012)

- ❖ 60 Posts since 8/26/2012, which reached more than 56,256 people
- ❖ Morning status update and 17th Street pumps photo spurred the most engagements

Twitter – 2,384 Followers (plus 39 since 8/29/2012)

Flickr – 1,642 views today and more than 3,440 views since 8/26/2012

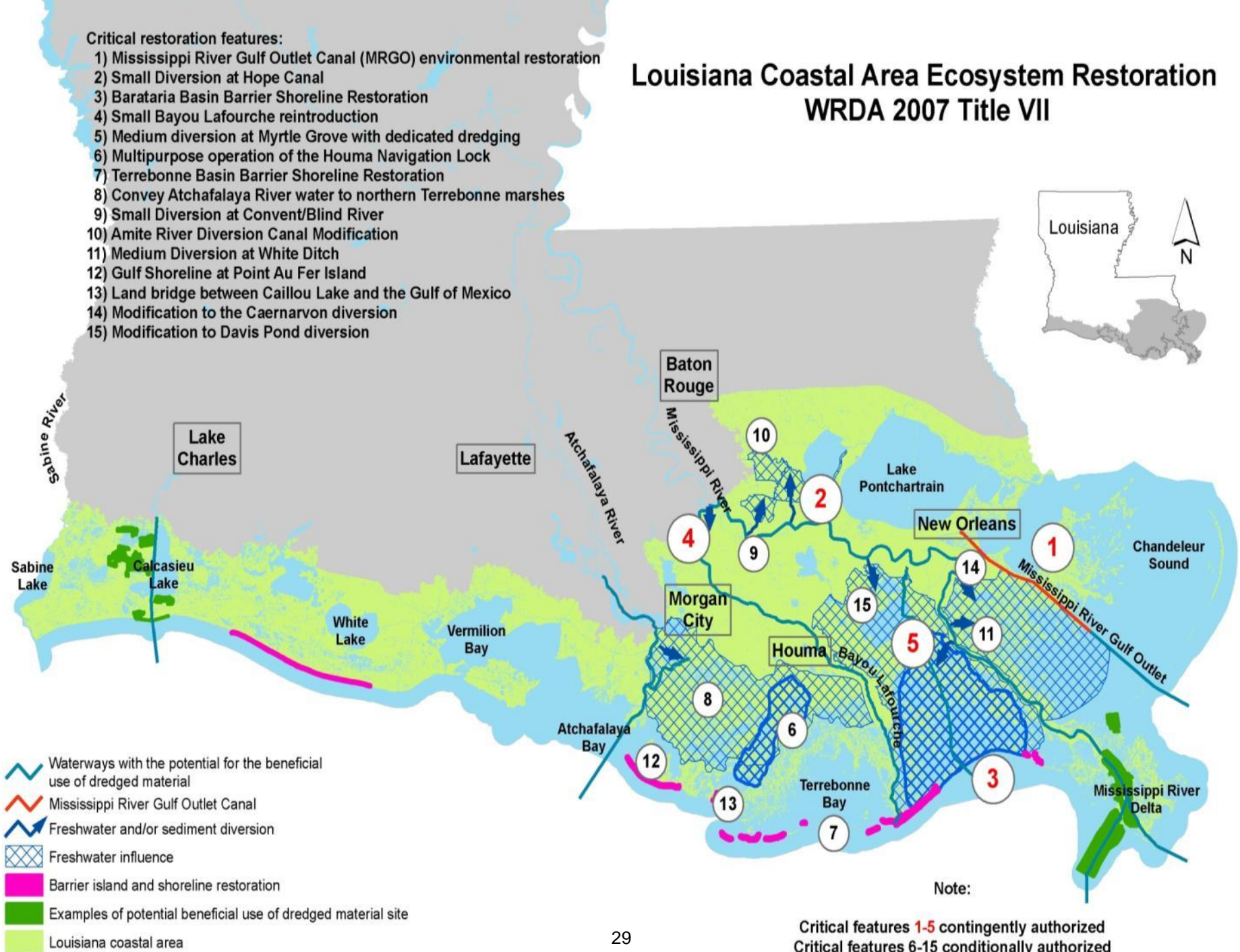
YouTube – Approximately 4,384 Views since 8/26/2012 (as compared to 107 views last week)

- ❖ Most Viewed Video (last week) “A Minute with the Commander” (35 views)
- ❖ Most viewed (this week) “West Closure Complex pump test” (1,741 views)

Louisiana Coastal Area Ecosystem Restoration WRDA 2007 Title VII

Critical restoration features:

- 1) Mississippi River Gulf Outlet Canal (MRGO) environmental restoration
- 2) Small Diversion at Hope Canal
- 3) Barataria Basin Barrier Shoreline Restoration
- 4) Small Bayou Lafourche reintroduction
- 5) Medium diversion at Myrtle Grove with dedicated dredging
- 6) Multipurpose operation of the Houma Navigation Lock
- 7) Terrebonne Basin Barrier Shoreline Restoration
- 8) Convey Atchafalaya River water to northern Terrebonne marshes
- 9) Small Diversion at Convent/Blind River
- 10) Amite River Diversion Canal Modification
- 11) Medium Diversion at White Ditch
- 12) Gulf Shoreline at Point Au Fer Island
- 13) Land bridge between Caillou Lake and the Gulf of Mexico
- 14) Modification to the Caernarvon diversion
- 15) Modification to Davis Pond diversion



Questions?



BACK UP

Major Structure Status – All Closures **Closed**

as of 1800 29-AUG-2012

Structure	Trigger Elevation FT NAVD88	Details	Structure Status	Time/Date Closed
Harvey Sector Gate	2.0 and rising	125 ft sector gate. 750 CFS pumps.	Closed	0830 29-Aug-2012
Bayou Segnette Complex	2.0	56 ft sector gate. 400 CFS pumps.	Closed	1145 29-Aug-2012
Bayou Verret Sector Gate	2.0	56 ft sector gate. 5 each 5 X 5 sluice gates. 48 hrs prior to landfall.	Closed	1545 28-Aug-2012
West Closure Complex	2.0 - 3.8	With predicted surge of 4.0 ft, close within trigger range.		
Estelle Canal	2.0 - 3.8	2 each 8 X 8 sluice gates.	Closed	0725 27-Aug-2012
Sluice Gates	2.0 - 3.8	5 each 16 X 16 sluice gates.	Closed	0930 29-Aug-2012
Sector Gate	2.0 - 3.8	225 ft sector gate. 19,140 CFS pumps.	Closed	0920 29-Aug-2012
London Ave Canal ICS	2.5 and rising	11 vertical lift gates. Max operating level 5.0 ft.	Closed	1500 28-Aug-2012
Hero Canal Stoplogs	2.5 and rising	56 ft opening. Stoplogs placed by crane. Must be placed before winds reach 25 mph.	Closed	1500 26-Aug-2012
Caernarvon Sector Gate	2.9	50 ft sector gate.	Closed	2015 28-Aug-2012
Bayou Dupre Sector Gate	3.0	56 ft sector gate.	Closed	2300 26-Aug-2012
IHNC Surge Barrier	3.0 and rising	With predicted surge of 5.0 ft, close at trigger		
Barge Gate	3.0	150 ft barge gate. 6 hrs to close. 72 hrs prior.	Closed	Pre Event
Bienvenue Lift Gate	3.0	56 ft lift gate.	Closed	1100 28-Aug-2012
Surge Barrier Sector Gate	3.0 and rising	150 ft sector gates. 15 min to close.	Closed	1100 28-Aug-2012
Seabrook Structure	3.0 and rising	With predicted surge of 5.0 ft, close at trigger		
Lift Gates	3.0 and rising	2 each 50 ft lift gates.	Closed	1330 28-Aug-2012
Sector Gate	3.0 and rising	95 ft sector gate.	Closed	1330 28-Aug-2012
17th St Canal ICS	5.0 and rising	11 vertical lift gates. Max operating level 6.0 ft.	Closed	1730 28-Aug-2012
Orleans Ave Canal ICS	5.0 and rising	5 vertical lift gates. Max operating level 8.0 ft.	Closed	1100 27-Aug-2012

Closures

(as of 1800 29 Aug 2012)

Lake Pontchartrain and Vicinity

Perimeter	USACE	Levee District
Total	33	65
Not Needed	16	9
Closed	17	56
Remaining	0	0

West Bank and Vicinity

Perimeter	USACE	Levee District
Total	21	5
Not Needed	0	0
Closed	21	5
Remaining	0	0

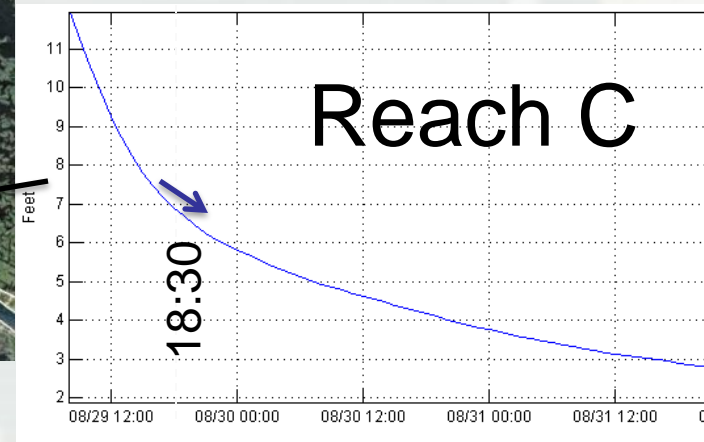
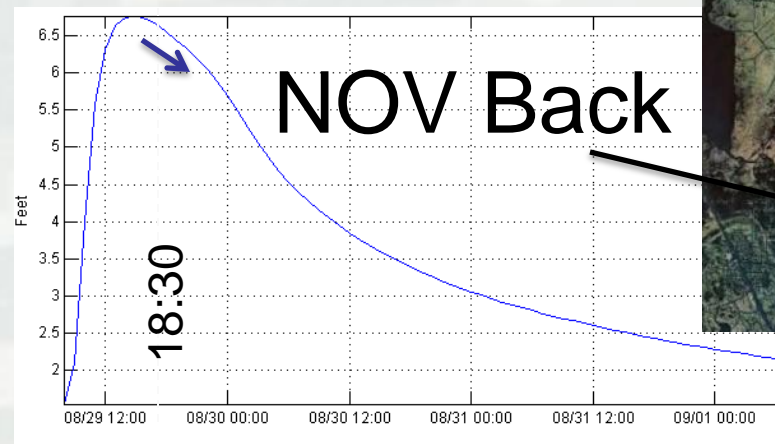
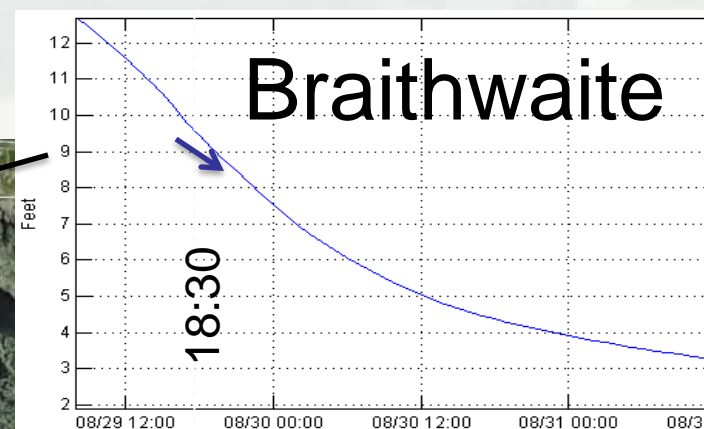
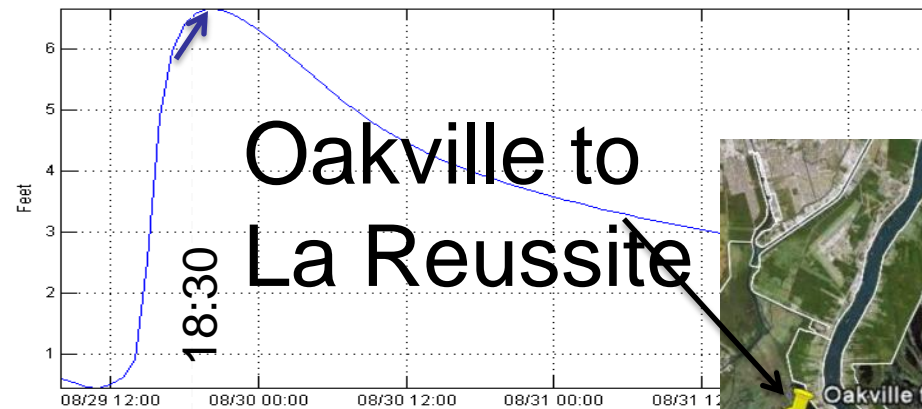
Interior	IHNC	Outfall Canals
Total	88	27
Not Needed	0	1
Closed	88	26
Remaining	0	0

Harvey/Algiers Interior	USACE	Levee District
Total	28	70
Not Needed	0	0
Closed	28	48
Remaining	0	22

Mississippi River Levees

	East Bank	West Bank
Total	147	20
Not Needed	147	20
Closed	0	0
Remaining	0	0

Total Openings	Not Needed	Closed	Remaining
504	193 ₃₃	289	22



Mississippi River Surge Levels from Venice to Red River

